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| 10/573,977 | 02/13/2007 | **Wenlin Zhang** | 0311282US | 4160 |

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| EXAMINER | |
|---|---|
| WOO, KUO-KONG | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/573,977 | ZHANG, WENLIN | |
| | Examiner | Art Unit | |
| | KUO WOO | 2617 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *29 March 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *7,9,19 and 21-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 8, 10-18, 20 and 25-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

## DETAILED ACTION

### *Response to Amendment*

1. This action is response to the communication filed on March 23, 2011.

2. Claims 1-6, 8, 10-18, 20 and 25-31are pending in this action. Claims 1-6, 8, 10-18, 20, and 25-29 have been amended. Claims 30-31 are added. Claims 9, 19 and 21-24 have been cancelled.

3. Applicant has amended claim 4 in response to the rejection of claim 4 under 35 U.S.C §112, second paragraph, as being indefinite. Accordingly, the rejections of claim 4 under 35 U.S.C §112 is withdrawn.

4. Applicant's arguments filed March 23, 2011 have been fully considered but are moot in view of new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-6, 8, 10-18, 20 and 25-31are rejected under 35 U.S.C. 103(a) as being unpatentable over Haverinen et al. (US PGPUB 2004/0064741 A1) in view of Ahmavaara et al. ( US PGPUB 2004/0066756 A1).

Regarding claims 1 and 30, Haverinen discloses "sending, by the UE (16-Figure 1) , an authentication request message ( ¶94, which recites sends an EAPOL including an EAP-Response/Service-Authorization that carries signed accounting information to

the access point, message 610. Figure 2 and 3) to a WLAN Access Network (AN) (12-Figure 1) after a connection between the UE and the WLAN AN is established" ( 82, which recites EAP service authorization server connection means 402 for connecting to a network 403);

"Receiving, by the UE, a User Identity Request message from the WLAN AN (¶94, which recites AP-request/Service-Authorization message is sent request to said specific terminal (UE), message 608);

"Obtaining, by the UE, information of the WLAN serving the UE (¶94, which recites information of EAP service authorization server, see FIGS. 4 and 5);

"determining (step 706- Figure 7 and ¶95, which recite In the terminal the information is verified 706., by the UE) and (information has been collected (stored) during a predetermined period of time or for a predetermined amount of sent and/or received data), whether the information of the WLAN serving the UE matches information of a WLAN stored in the UE"( ¶95, which recite If the verification is successful then the terminal sends an EAPOL message 708 including an EAP-Response/Service-Authorization);

If it is determined that the information of the WLAN serving the UE matches the information of the WLAN stored in the UE" (¶95, which recite If the verification is successful then the terminal sends an EAPOL message 708 including an EAP-Response/Service-Authorization);

"returning, by the UE, a User Identity Response message to said WLAN AN, ( ¶95, which recites the terminal sends an EAPOL message 708 including an EAP-

Response/Service-Authorization, to the access point) wherein the User Identity response message carries network selection information, and wherein the network selection information is network selection information corresponding to the matched WLAN, and the network selection information indicates a mobile communication network which the UE wants to access to";

"Whereby the WLAN AN forwards the authentication request message to the mobile communication network indicated in the network selection information" (¶95, which recites then the access point/EAP service authorization server generates and sends a Diameter Accounting-Request 714 to the AAA server). However, Haverinen does not explicitly disclose the information stored in the UE.

In an analogous art, Ahmavaara discloses (¶15, which recites user equipment is storing an identification of the at least one other network in the user equipment; transmitting from the user equipment a request for connection to one of the at least one other network).

Therefore, the Ahmavaara provides motivation to one skilled in the art to modify the teaching of Haverinen, in particular based on the verification that the user equipment may utilize at least one access network identification when establishing a connection to the at least one other network, so as to arrive the claimed invention. Rational is using of known technique to improve similar device in the same way;

Regarding claim 2, Haverinen does not teach if information does not match stored in the UE.

Ahmavaara discloses (¶26, which recites if the network is not available, the UE tries to connect via preferred (**second best or high priority network**) backbone networks) "returning, by the UE, (¶26, which recites solicited by the user equipment or done manually by the user of the UE). a User Identity Response message to the WLAN AN, (¶26, which recites the passing of the SSID's to the WLAN access) wherein the User Identity Response message carries network selection information, and wherein the network selection information is information of a pre-configured mobile communication network (¶28, which recites the UE may map (pre configured) each SSID to a backbone network and using the SSID corresponding to that selected backbone network) with the highest priority";

wherein if the WLAN AN determines that the WLAN AN is able to route the authentication request message, ( ¶27, which recites the information about available backbone networks is communicated by the WLAN AP to the UE in the form of WLAN SSIDs) it forwards the authentication request message to the mobile communication network indicated in the received network selection information;

"if the WLAN AN determines that the WLAN AN is not able to route the authentication request message, it sends a notification signal to the UE, wherein the notification signal indicates the UE to perform subsequent operations" (¶95, which recites WLAN AN inform UE if there is mismatch, the WLAN Access network or roaming partner is determined to not be behaving correctly).

Therefore, the Ahmavaara provides motivation to one skilled in the art to modify the teaching of Haverinen, in particular provides alternative selections if not matching

with stored network to route and inform UE the selections to establishing a connection to one other network, so as to arrive the claimed invention. Rational is using of known technique to improve similar device in the same way;

Regarding claim 3, Haverinen discloses "wherein, said information includes WLAN identity information" (804-Figure 8, and ¶ 96, which recites WLAN EAP-Response/Service-Authorization packet both comprises a Code field 802, an Identifier field 804).

Regarding claim 4, Ahmavaara discloses "storing the identity information of the WLAN serving the UE, ( ¶19, which recites he at least one other network is stored in the user equipment, wherein the information of the mobile communication network is used as the network selecting information corresponding to the identity information of the WLAN serving the UE".( ¶78, which recites if WLAN serving not stored in UE , then the identification of the roaming network may be transmitted from the wireless access network to the UE for storage and may be in response to a solicitation by the user equipment of an identification the roaming network).

Regarding claim 5, Haverinen discloses "wherein, said pre-configured mobile communication network with the highest priority is a home network"( ¶26, which recites the UE always tries first to connect directly to the home network which is Home PLMN 4 which includes the UE's home location register (HLR)).

Regarding claim 6, Ahmavaara discloses "said WLAN identity information refers to Access Point Identity (APID) or Service Set Identity (SSID)" (¶90, which recites WLAN UE indicates the selected SSID when connecting to the access network.);

"Access Point Identity (APID) is Media Access Control (MAC) address of the Access Point (AP)" ( ¶14, which recites SSID include network address that The WLAN Access network routes the connection establishment to a backbone network (e.g. a visited PLMN) based on the attached NAI user ID realm part derived from the selected SSID).

Regarding claims 8, 14 and 27, Haverinen discloses "determining whether the valid survival time of the network selection information has exceeded" (¶91, which recites in step 510 the value of the timer is compared with a predetermined time limit, $t_{.limit.)}$ wherein if it is determined that the information of the WLAN serving the UE matches information of the WLAN stored in the UE and that the valid survival time of the stored network selection information has not exceeded, If the value of the timer does not exceed limit, $t_{.limit}$ (then the process continues by checking whether an EAP-response has been received from the terminal, step 514), using the network selection information corresponding to the matched WLAN as the network selection information to be carried";

or if it is determined n that the valid survival time of the stored network selection information has exceeded, ( ¶91, which recite If the value of the timer exceed the value of $t_{.limit}$, ( then no EAP-response has been received within the time limit and the process continues to step 512 and ends the access to the service that the accounting information relates to.) using the information of a pre-configured mobile communication network with the highest priority as the network selection information to be carried. (¶91

which recites the user of the terminal that is stored in a memory of the EAP service authorization server 10).

Regarding claim 10, Haverinen discloses "when the UE has successfully accessed the mobile communication network indicated in the network selection information, determining whether the UE has stored the information of the mobile communication network" (¶15, which recites user equipment is storing an identification of the at least one other network in the user equipment and transmitting from the user equipment a request for connection to one of the at least one other network).

"if the UE has not stored the information of the mobile communication network, ".( ¶78, which recites if WLAN serving not stored in UE , then the identification of the roaming network may be transmitted from the wireless access network to the UE for storage and may be in response to a solicitation by the user equipment of an identification the roaming network).storing the identity information of the WLAN serving the UE and the information of the mobile communication network, wherein the information of the mobile communication network is used as the network selection information corresponding to the identity information of the WLAN serving the UE, and resetting the valid survival time of the currently stored network selection information"; ( ¶84, which recites reset the timer when the time passed since the last request exceeds a specific value or when the amount of data sent and/or received since the last request exceeds a specific value, or a predetermined criteria set by one of the operators)wherein may reset the timer.

**Or if** the UE has stored the information of the mobile communication network, determining whether the information of the mobile communication network is the network selection information corresponding to the identity information of the WLAN serving the UE,

**Or if** the information of the mobile communication network is not the network selection information corresponding to the identity information of the WLAN serving the UE, resetting said valid survival time of the network selection information of the mobile communication network. The above limitation start with "or **if"** as alternative conditions and Examiner interprets as optional to further exam listed prior arts read on the limitations.

Regarding claim 11, Haverinen discloses "setting a valid usage times for the stored network selection information". (¶91, which recites in step 510 the value of the timer, is compared with a predetermined time limit,

Regarding claim 12, Haverinen discloses "if the identity information of the WLAN serving the UE is stored in said, determining whether the valid usage times of the stored network selection information corresponding to the identity information of WLAN serving the UE have been consumed, (¶91, which recites the process continues to step 512 ( Timer> time $_{limit}$ and ends the access to the service that the accounting information relates to ) if the valid usage times of the stored network selection information corresponding to the identity information of WLAN serving the UE have been consumed, using the pre-configured mobile communication network with the highest priority as the network selection information to be carried" Ahmavaara discloses (¶26,

which recites if the network is not available, the UE tries to connect via preferred (**second best or high priority network**) backbone networks).;

"or if the valid usage times of the stored network selection information corresponding to the identity information of WLAN serving the UE have not been consumed, regarding the valid usage times of the stored network selection information corresponding to the identity information of WLAN serving the UE as the network selection information to be carried, and the valid usage time being consumed". Haverinen discloses (¶91, which recites if the value of the timer does not exceed $t_{limit}$ then the process continues by checking whether an EAP-response has been received from the terminal, step 514).

Regarding claim 13, Haverinen discloses" when the UE has successfully accessed the mobile communication network indicated in the network selection information, determining whether the UE has stored the mobile communication network" (¶19 which recites the at least one other network is stored in the user equipment);

"if the UE has not stored the mobile communication network, ".( ¶78, which recites if WLAN serving not stored in UE , then the identification of the roaming network may be transmitted from the wireless access network to the UE for storage and may be in response to a solicitation by the user equipment of an identification the roaming network). storing the mobile communication network-as the network selection information corresponding to the identity information of the WLAN serving the UE together with the identity information of the WLAN serving the UE, and resetting the valid usage times of the currently stored network selection information;

Or if the UE has stored the mobile communication network, determining whether the information of the mobile communication network is the network selection information corresponding to the identity information of the WLAN serving the UE (¶61, which recites The WLAN AP may store all the supported SSIDs into a SSID list within WLAN AP),

"If the information of the mobile communication network is not the network selection information corresponding to the identity information of the WLAN serving the UE, resetting the valid usage times of the network selection information." ( ¶84, which recites reset the timer when the time passed since the last request exceeds a specific value or when the amount of data sent and/or received since the last request exceeds a specific value, or a predetermined criteria set by one of the operators)wherein may reset the timer.

Regarding claims 15 and 28-29, Haverinen discloses "setting a threshold of the amount of the information permitted to be stored in the UE ( ¶72, which recites the terminal has been connected to a service, a value indicating **the amount of data** sent and/or received using a specific service, information regarding when the user utilized the service), determining whether the number of the identity information of the current WLAN and corresponding network selection information exceeds the threshold of the amount of information permitted to be stored, ( ( ¶84, which recite when exceeds the threshold amount EAP-request is to be sent when the time passed since the last request exceeds a specific value or when the amount of data sent and/or received since the last request exceeds a specific value) if the number of the identity information of the

current WLAN and corresponding network selection information exceeds the threshold, (¶ 84, which recite predetermined criteria set by one of the operators ( include stop the process or delete data) actions may take for when the amount of data sent and/or received since the last request exceeds a specific value) deleting the old information of the current WLAN or corresponding network selected information, and storing the identity information of the WLAN serving the UE and it-s-corresponding network selection information of serving the UE".

Regarding claim 16, Ahmavaara discloses"wherein said network selection information is contained in a Network Access Identity (NAI)" (¶32, which recites the selection information include the user identity complying to the network access identifier (NAI) format.)

Regarding claims 17 and 20,Ahmavaara discloses "re-selecting, by the UE, ( ¶28, which recite the UE may then select to which of the available backbone networks it desires to connect) a mobile communication network, and obtaining the network information corresponding to the re-selected mobile communication network";

"Sending a message carrying the re-selected information of the new network to the WLAN AN".( ¶28, which recites send information to network after selection, the UE associates with the access network, such as the visited PLMN2, using the SSID corresponding to that selected backbone network.)

Regarding claim 18, Haverinen discloses "Waiting, by the WLAN AN, for a response message from said UE for a certain time, if no response has been received, sending a Selection Result Request to said UE" (¶94, which recites WLAN AN send

search result Step 616 in figure 6 to UE and the access point then passes the EAP-success message on to the terminal by means of an EAPOL, message 616.).

Regarding claim 25, Haverinen discloses" wherein, said WLAN interworking network is a 3GPP-WLAN interworking network". (¶60, which recites using system comprises an Extensible Authentication Protocol (EAP) in WLAN network and EAP are using as part of 3GPP network.

Regarding claim 26, Ahmavaara-discloses "mobile communication network refers to a public land mobile network (PLMN)" (Abstract, which recites the method includes storing the identification (SSID) of the at least one other network (visited PLMNs 1-3 and home PLMNs 4 and 5) in the user equipment.

Regarding claim 31, Haverinen discloses "send an authentication request message to the WLAN AN after a connection between the UE and the WLAN AN is established"; ¶94, which recites ends an EAPOL including an EAP-Response/Service-Authorization that carries signed accounting information to the access point, message 610.)

"receive a User Identity Request message from the WLAN AN" (¶94, which recites the access point and is sent as any other EAP-request to said specific terminal, message 608):

; obtain information of the WLAN serving the UE (¶94 which recites carrying the information is then packed by the EAP over LAN (EAPOL) protocol at the access point);

"Determine (¶79, which recites the process checks whether the verifying step 304 resulted in a success or a failure) whether the information of the WLAN serving the UE

matches (¶91, which recites if match step 516, by means of the signature of the terminal or the user of the terminal that is stored in a memory) information of a WLAN stored in the UE;

If it is determined that the information of the WLAN serving the UE matches the information of the WLAN stored in the UE" (¶95, which recite If the verification is successful then the terminal sends an EAPOL message 708 including an EAP-Response/Service-Authorization);

"return a User Identity Response message to the WLAN AN, wherein the User Identity Response message carries network selection information, and wherein the network selection information is network selection information corresponding to the matched WLAN, and the network selection information indicates a mobile communication network which the UE wants to access to, , ( ¶95, which recites the terminal sends an EAPOL message 708 including an EAP-Response/Service-Authorization, to the access point) ;

"Whereby the WLAN AN forwards the authentication request message to the mobile communication network indicated in the received network selection information" (¶95, which recites then the access point/EAP service authorization server generates and sends a Diameter Accounting-Request 714 to the AAA server).

However, Haverinen does not explicitly disclose the information stored in the UE.

In an analogous art, Ahmavaara discloses (¶15, which recites user equipment is storing an identification of the at least one other network in the user equipment;

transmitting from the user equipment a request for connection to one of the at least one other network).

Therefore, the Ahmavaara provides motivation to one skilled in the art to modify the teaching of Haverinen, in particular based on the verification that the user equipment may utilize at least one access network identification when establishing a connection to the at least one other network, so as to arrive the claimed invention. Rational is using of known technique to improve similar device in the same way;

## *Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KUO WOO whose telephone number is (571)270-7266. The examiner can normally be reached on 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KUO WOO/
Examiner, Art Unit 2617

/LESTER KINCAID/
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